

DETAILED ACTION

1. Claims 1-29 are pending in the application.
2. Applicants' amendment, filed 2/29/08, has overcome the claim objection, of claim 12, issued in the Office Action dated 11/29/07.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al. {US Pat. 5,026,927}.

Andrews et al. teach a process for the hydrogenolysis of a sugar feedstock in the presence of a ruthenium/phosphine catalyst, with an optional base promoter, and a solvent (see summary of the invention; Col. 2, lines 32-68 through Col. 3, lines 1-67). The difference between the presently claimed invention and what is taught by the Andrews et al. reference is that Andrews et al. do not exemplify a hydrogenolysis

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process wherein water is used as solvent and wherein the hydrogenolysis is carried out at a temperature greater than 150⁰ C. However, Andrews et al. generally teach that the solvent used in the hydrogenolysis can be, inter-alia, water and that the hydrogenolysis can be conducted at temperatures ranging from 25⁰ C to 200⁰ C (see Col. 3, lines 15-17 and lines 34-40).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art to arrive at the presently claimed invention because Andrews et al. teach a similar process for the hydrogenolysis of a sugar feedstock in the presence of a ruthenium/phosphine catalyst, with an optional base promoter, and a solvent. The pre-reduction step and catalyst regeneration, as recited in the present claims 26-29, are obvious variants to persons having ordinary skill in the art, absent any unexpected evidence to the contrary.

One having ordinary skill in the art, desiring to arrive at other alternative means of carrying out hydrogenolysis of a sugar feedstock, would have been motivated to use any solvent, including water, and hydrogenolysis temperatures as high as 200⁰ C as taught by Andrews et al.. Therefore, the presently claimed invention would have been obvious to one having ordinary skill in the art.

Response to Arguments

Applicant's arguments filed 2/29/08 have been fully considered but they are not persuasive.

Applicants argue that when water and higher temperature is used in their invention unexpected results are obtained and point to present Example 59, Tables 1 and 13 in comparison to the Examples in Andrews et al.

This argument is not convincing because water is suggested as a solvent in Andrews et al. and Andrews et al. teach that the hydrogenolysis reaction can be conducted at temperatures as high as 200 degrees Celsius. Hence, one having ordinary skill in the art, desiring to arrive at optimum conditions for the Andrew et al. hydrogenolysis process, would have been motivated to investigate water as a reaction solvent and vary the reaction temperatures to as much as 200 degrees Celsius. In doing so, one of ordinary skill in the art would realize the optimum temperatures that would afford the greatest hydrogenolysis conversion and product selectivity. Therefore the instantly claimed invention would have been obvious to one having ordinary skill in the art.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elvis O. Price whose telephone number is 571 272-0644. The examiner can normally be reached on 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne L. Eyler can be reached on 571 272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elvis O. Price/

Primary Examiner, Art Unit 1621